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The Influence of George Lindsey and Robert Sutherland on Canadian Denuclearisation, 1962-1972

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Abstract: Between 1957 and 1963, Canada acquired numerous nuclear delivery systems to fulfill commitments to the defence of North America and the North Atlantic Treaty Organisation (NATO). In 1972, Pierre Trudeau's government divested most of these systems. Much of the literature ascribes Trudeau's decision to purely political reasons. By examining the contributions of two operational researchers from the Defence Research Board, Dr. R.J. Sutherland and Dr. George Lindsey, this article assesses the influence of professional advice on denuclearisation. This research has found that Lindsey and Sutherland provided a strategic grammar which helped shape the nature and timing of partial denuclearisation.

In 1963, CANADIAN DEFENCE SCIENTIST Dr. R.J. Sutherland gave an extraordinary talk at the National Defence College. The Cuban Missile Crisis had occurred the year before, NATO was working through tortuous arrangements for the allied control of nuclear weapons and the Sino-Soviet split was metastasising.[1] Sutherland surveyed these developments from a Canadian point of view. The balance of world power had tilted inexorably toward the big powers, with significant consequences for small countries like

[1] R.J. Sutherland, "Trends in Strategic Weapons and Concepts – Lecture to the National Defence College by R.J. Sutherland," 11 March 1963, III.72, vol. 1, 87/253, Lindsey-Sutherland fonds, Directorate of Heritage and History (DHH).

Canada. Unhappily, it forced a rethink of Canada's nuclear policy after six gruelling years of negotiation, acquisitions and planning. Significantly, many of Sutherland's ideas presaged those of the much better known Hans J. Morgenthau in his influential "The Four Paradoxes of Nuclear Strategy," published the following year.[2] Sutherland expressed original and innovative thinking in an era of Canadian strategic thought that would later be taken by some as "a posture of dependence for intellectual nourishment upon the debates of others"—a state described by Colin S. Gray as "strategic theoretical parasitism."[3]

More parochial concerns soon dominated the minds of the officers in the lecture hall. In 1964, Lester B. Pearson's Liberal government tabled the *1964 White Paper on Defence*, starting a wave of changes over the next twenty years that are widely seen to have ended the "golden age" of Canada's peacetime military.[4] These reforms, which accelerated under the government of Pierre Trudeau, encompassed everything from uniforms to bilingualism and the reduction of Canada's NATO commitment. One key element of this shift was the divestment of nuclear weapons: having acquired a significant arsenal of nuclear surface-to-air missiles (SAMs), air-to-air rockets, gravity bombs and surface-to-surface rockets in 1963 and 1964, the Canadian government retired all of these systems in 1972 save the air-to-air rockets, which were finally taken out of use in 1984.

To some historians and commentators, nuclear divestment embodies political meddling in operational matters with the resultant military decline—a symptom of the amateurism and naiveté of outsiders who had unfortunately gained access to the policy-making machinery.[5] Although there has been extensive research into Canadian

[2] Hans J. Morgenthau, "The Four Paradoxes of Nuclear Strategy," *The American Political Science Review,* 58, 2 (March 1964): 23-35.

[3] Peter Kasurak, *A National Force: The Evolution of Canada's Army, 1950-2000* (Vancouver: University of British Columbia Press, 2003), 72-73; and Colin S. Gray, "The Need for Independent Canadian Strategic Thought," *Canadian Defence Quarterly* 1, 1 (Summer 1971): 6-12.

[4] J.L. Granatstein and Robert Bothwell, *Pirouette: Pierre Trudeau and Canadian Foreign Policy* (Toronto:
University of Toronto Press, 1990), 234; and John A. English, *Lament for an Army: The Decline of Canadian Military Professionalism* (Toronto: Irwin, 1998), 51.

[5] Sean Maloney, *Learning to Love the Bomb: Canada's Nuclear Weapons During the Cold War* (Washington: Potomac Books, 2007), 373. See also Gray, "The Need for Independent Canadian Strategic Thought," 6.

nuclear weapons acquisition, comparatively little has explored the reasons for divestment. Sean Maloney has written a well-researched book on Canada's relationship with nuclear weapons, but its emphasis is overwhelmingly on decisions to acquire particular systems between 1951 and 1964, with very little to be said about denuclearisation—in fact, only four dedicated pages.[6] Erika Simpson, in *NATO and the Bomb: Canadian Defenders Confront Critics*, puts forward the interesting thesis that two groups of policy makers—pro-nuclear "defenders" who "feared abandonment" and anti-nuclear "critics" who "feared entrapment"—drove policy making.[7] However, by emphasising groups of individuals and their foundational experiences, Simpson's analysis de-emphasises very real and important technological and strategic changes throughout the period. She also devotes little space to divestment. Andrew Richter, in *Avoiding Armageddon: Canadian Military Strategy and Nuclear Weapons, 1950-1963*, takes a different view. Richter contests Gray's "parasitism" thesis by highlighting the rich operational research (OR) work on the subject of nuclear weapons that built up in Canada during the 1950s and early 1960s. But Richter's study ends in 1963, meaning that the OR contribution to denuclearisation is not present in the historical record.[8] Even the technical history published by John Clearwater provides only a short summary of divestment.[9] There seems to be some agreement that divestment came primarily from political sources and especially from Pierre Trudeau—a sort of *Trudeau ex machina*, marked by "the triumph of the amateurs over the professionals."[10] Because this stated assumption has not been examined in significant detail, it is worth asking: did any professional strategists influence the decision to denuclearise?

This article has found that a long line of strategic thinking in the Canadian operational research community, particularly by R.J. Sutherland and George R. Lindsey, influenced the decision to partially denuclearise in 1972. Gray can be forgiven for presuming a lack of

[6] Maloney, *Learning to Love the Bomb*, 369-73.
[7] Erika Simpson, *NATO and the Bomb: Canadian Defenders Confront Critics* (Montreal and Kingston: McGill-Queen's University Press, 2001), 41, 72.
[8] Andrew Richter, *Avoiding Armageddon: Canadian Military Strategy and Nuclear Weapons* (Vancouver: University of British Columbia Press, 2002), 6-7.
[9] John Clearwater, *Canadian Nuclear Weapons: The Untold Story of Canada's Cold War Arsenal* (Toronto: Dundurn, 1998), 73-74, 172-73, 215-16.
[10] Maloney, *Learning to Love the Bomb*, 372.

strategic thinking in Canadian defence policy. The Defence Research Board's (DRB) operational researchers produced numerous studies that framed Canadian nuclear commitments in a wider strategic context, but long walls of classification hid their work. Fortunately for the student of Canadian military history and defence policy, academics have begun to chip away at previously classified archival materials. Richter's *Avoiding Armageddon* has been complemented by a growing academic interest in the contributions of the Canadian OR community. J.S. Ridler and Jonathan Turner have both written excellent PhD dissertations on the influence of the DRB and Matt Wiseman has published a very helpful collection of George Lindsey's work from the Laurier Military History Archives.[11]

This survey will unfold in four broad areas. Firstly, the paper provides a brief technical and political background to the divestment debate. It will then examine how the Cuban Missile Crisis and other strategic developments in the 1960s affected discussions and commitments surrounding nuclear weapons in the *1964 White Paper on Defence*. The paper will also examine how evolving thought around the topic of deterrence and nuclear weapons affected the major nuclear policy decisions of the Pearson and Trudeau governments. Finally, in light of the decision to pursue partial denuclearisation in 1972, this paper will assess the contributions of the OR community to the 1969 Defence Policy Review (DPR) and the 1971 Defence White Paper.

BACKGROUND: NUCLEAR WEAPONS, ALLIANCES AND OPERATIONAL RESEARCH

Before looking too deeply into the impact of Lindsey's and Sutherland's thinking, it is worth discussing what operational research is and how it was conducted in Canada during the early Cold War. Operational research, classically defined, is "the scientific

[11] Jonathan Turner, "The Defence Research Board of Canada, 1947 to 1977" (PhD dissertation, University of Toronto, 2012); Jason Sean Ridler, "State Scientist: Omond McKillop Solandt and Government Science in War and Hostile Peace, 1939-1956" (PhD dissertation, Royal Military College of Canada, 2001); and Matthew S. Wiseman, ed., *The Selected Works of George R. Lindsey: Operational Research, Strategic Studies and Canadian Defence in the Cold War* (Toronto: University of Toronto Press, 2019).

method of providing executive departments with a quantitative basis for decisions regarding the operations under their control."[12] The field originated during the Second World War when the Royal Air Force (RAF) applied quantitative analysis to improve the British response to German bombing raids. By combining expertise in physics to optimise the placement of radar stations with a detailed statistical breakdown of German attack patterns, British operational researchers gave RAF leadership critical advice on the timing of defensive patrols and the organisation of effective command and control structures.[13] The Royal Navy and British Army took note and soon OR methods were being applied by all three British services with enthusiastic support from operational research teams established by the Canadian services.

This early flowering of OR soon encountered a post-war frost. The Canadian Army, Royal Canadian Navy (RCN) and Royal Canadian Air Force (RCAF) disbanded their OR sections as part of demobilisation in 1945, but they quickly regretted the decision as the need for a national OR capability became clear. In 1949, the services and the Defence Research Board (DRB) —the Department of National Defence's (DND) larger body for coordinating defence research established in 1947—agreed to revive an OR capability by coordinating and partially amalgamating the various services' research sections through a new Operational Research Group (ORG).[14] The ORG's original function was to provide a pool of civilian scientists to conduct research across each of the military's services, prevent duplication and oversee limited tri-service research.[15]

Lindsey and Sutherland played important parts in the early years of Canada's Cold War OR community. They had much in common. Both men had experience serving in the Second World War—Lindsey with Royal Canadian Artillery, Canadian Operational Research Group and the British Army Research Group, and Sutherland with

[12] D.J. Goodspeed, *A History of The Defence Research Board of Canada* (Ottawa: Queen's Printer, 1958), 162.

[13] Goodspeed, *A History of The Defence Research Board of Canada*, 162-63.

[14] The operational research section changed names several times, including Operational Research Establishment (ORE), Defence Operational Research Establishment (DORE) and Defence Research and Analysis Establishment (DRAE). In internal documents from the period these titles were often used interchangeably. For the purposes of this paper, either the period-appropriate acronym or DRAE will be used to describe the DRB's OR section.

[15] Goodspeed, *A History of The Defence Research Board of Canada*, 168-69.

The Lord Strathcona's Horse (Royal Canadians).[16] Both gained their PhDs after the war— Lindsey in nuclear physics and Sutherland in economics. And both began their post-war operational research careers shortly after the ORG's founding; Lindsey joined to begin work with the RCAF on continental defence programmes while Sutherland was deployed to Korea as part of the Canadian Army's OR section.[17] By the late 1950s, both researchers came to work on continental defence questions and became close friends.[18] In 1963, after Sutherland became head of the ORG, he wrote of Lindsey as "the most able operational research man…not only in Canada, but in any other country."[19] Coming from someone described as "Canada's one man equivalent to the RAND Corporation,"[20] this was no mean praise. Though very little correspondence between them is found in archival sources, it is clear that they had a close relationship based on close collaboration and mutual respect.

As the 1950s progressed, the ORG's independent role grew as changing technological and strategic problems outgrew individual service imperatives. In particular, the challenge posed by Intercontinental Ballistic Missiles (ICBMs) came under the ORG's direct purview in the late 1950s.[21] As the strategic situation became more complex in the 1960s, the quantitative focus of traditional operational research stretched to include questions of larger political significance, specifically the strategic position that small states encountered as they sought to navigate the superpower rivalry between the United States and the Soviet Union. This wide scope made the ORG an important institution. Indeed, until the 1970s few organisations outside of the military's OR community, uniformed

[16] Wiseman, *The Selected Works of George R. Lindsey*, xvii-xviii; and James Lee and David Bellamy, "Dr. R.J. Sutherland: A Retrospective," n.d., III.0, vol. 5, 87/253, Lindsey-Sutherland fonds, DHH.

[17] Wiseman, *The Selected Works of George R. Lindsey*, xx; and Lee and Bellamy, "Dr. R.J. Sutherland: A Retrospective," III.0, vol. 5, 87/253, Lindsey-Sutherland fonds, DHH. For an understanding of Sutherland's work with the Canadian Army Operational Research Establishment, see A.B. Godefroy, *In Peace Prepared: Innovation and Adaptation in Canada's Cold War Army* (Vancouver: University of British Columbia Press, 2014).

[18] Lee and Bellamy, "Dr. R.J. Sutherland: A Retrospective," n.d., III.0, vol. 5, 87/253, Lindsey-Sutherland fonds, DHH.

[19] Wiseman, *The Selected Works of George R. Lindsey*, xxii.

[20] Lee and Bellamy, "Dr. R.J. Sutherland: A Retrospective," n.d., III.0, vol. 5, 87/253, Lindsey-Sutherland fonds, DHH.

[21] Goodspeed, *A History of The Defence Research Board of Canada*, 169.

advisors, and a smattering of individual academics systematically studied strategic issues from a Canadian point of view.[22] One downside to this relatively insular community was that thinking stayed inside the Canadian defence and foreign affairs establishment. Sutherland, one of the most original and innovative strategic thinkers in Canada, published only two papers in public journals and collections, with most of his work remaining classified until the 1990s and 2000s. Much of his work is still restricted.[23] Lindsey published more widely, but most of his major contributions came after 1972.[24]

Within government, however, Sutherland's and Lindsey's work circulated widely and their analyses carried considerable weight. Both men headed the ORG during crucial points in the denuclearisation decision—Sutherland from 1963 to 1967 and Lindsey from 1967 until DRB's reorganisation in the 1970s.[25] As respective heads of the operational research section, they had access to both the minister of national defence and senior military leadership and were often asked to comment on specific military programmes, concepts and, on occasion, even drafted speeches.[26] They presented directly to the Standing Committee on External Affairs and National Defence (SCEAND) and replied directly to queries for comment by Deputy Ministers and Assistant Deputy Ministers on government papers.[27] During the nuclear acquisition debate, for example, most of the papers that went to the minister first passed Sutherland's desk. Tellingly, policy makers outside their normal bureaucratic chain recognised

[22] J.H. Trotman, "A Canadian National Policy Research Institute," 27 August 1968, 10.1, vol. 2, 87/253, Lindsey-Sutherland fonds, DHH.

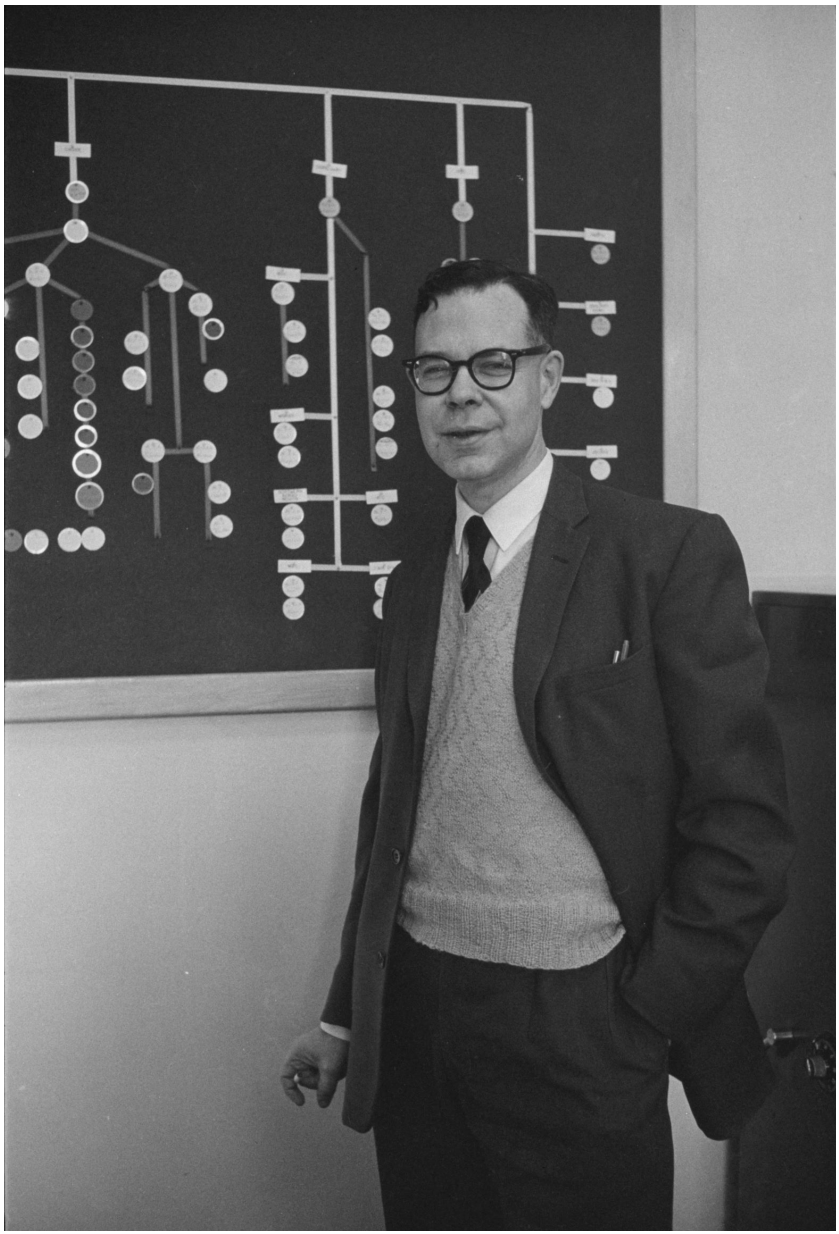
[23] Lee and Bellamy, "Dr. R.J. Sutherland: A Retrospective," III.0, vol. 5, 87/253, Lindsey-Sutherland fonds, DHH.

[24] Wiseman, *The Selected Works of George R. Lindsey*, xvii.

[25] Wiseman, *The Selected Works of George R. Lindsey*, xxv; and John W. Mayne, *History of Operational Research in the Royal Canadian Air Force* (Ottawa: Department of National Defence, 1979), 52.

[26] R.J. Sutherland to Robert Miller (presumed), correspondence, 5 November 1962, III.45, vol. 8, 87/253, Lindsey-Sutherland fonds, DHH. See also Frank Maas, *The Price of Alliance: The Politics and Procurement of Leopard Tanks for Canada's NATO Brigade* (Vancouver: University of British Columbia Press, 2017), 23-24; Godefroy, *In Peace Prepared*, 126; and Kasurak, *A National Force*, 93.

[27] George R. Lindsey, *Strategic Weapons Systems, Stability, and the Possible Contribution by Canada* (Ottawa: Department of National Defence, 1969). The forward to this document notes that it "is almost identical with the one prepared for the information of the members of the Commons Standing Committee on External Affairs and National Defence."



R.J. Sutherland in 1963. [Duncan Cameron/Library and Archives Canada/PA-166257]

Sutherland's and Lindsey's contributions. Canadian diplomat Basil Robinson, who served as both the Department of External Affairs' liaison to Diefenbaker and later as Undersecretary of State for External Affairs thought of Sutherland as a "strategist."[28] Some at the Department of External Affairs (DEA) thought George Lindsey was influential enough to consider him a threat. In the words of Michael Pittfield, the Assistant Secretary to the Privy Council during the defence reviews, "the last thing [some at DEA] wanted was to allow George Lindsay [*sic*] to exist."[29] While assessing influence is inherently circumstantial, there are few better indicators than open rivalry. Given their wide circulation in government, it is possible to plausibly gauge Lindsey's and Sutherland's impact by understanding how they approached complex technical subjects such as deterrence theory, how they expressed these understandings to policy makers and then contrasting their understandings and recommendations with changes in executive documents, such as policy statements and white papers.

Before discussing Canadian nuclear weapons policy, it is important to clarify just what those weapons were, when they were acquired and the reasons for their adoption. When Canada first signed on to NATO in 1949, it was primarily a political pact that included a set of military assurances without much detailed military planning.[30] This changed radically with a series of developments in the late 1940s and early 1950s, notably the Berlin Blockade (1948-1949), the first Soviet atomic (1949) and hydrogen (1952) weapons tests, and the Korean War (1950-1953). In 1951, the members of NATO agreed to establish a force-in-being, directed by Supreme Headquarters Allied Powers Europe under the leadership of General Dwight Eisenhower as Supreme Allied Commander Europe (SACEUR).[31] Between 1950 and 1952, Canadian defence spending tripled. Ottawa quickly assembled and despatched a ground formation, which after a few name changes

[28] Henry Basil Robinson, interviewed by Robert Bothwell and J.L. Granatstein, 5 August 1987, Ottawa, Accession 20150335, George Metcalf Archival Collection, Canadian War Museum Military History Research Centre (MHRC).
Granatstein and Bothwell, *Pirouette,* 20.

[29] Robert Bothwell and J.L. Granatstein, *Trudeau's World: Insiders Reflect on Foreign Policy, Trade and Defence, 1968-1984* (Vancouver: University of British Columbia Press, 2017), 39.

[30] North Atlantic Treaty Organization, "A Short History of NATO," accessed 14 April 2019, https://www.nato.int/cps/en/natohq/declassified_139339.htm.

[31] North Atlantic Treaty Organization, "A Short History of NATO."

settled as 4 Canadian Infantry Brigade Group (4 CIBG) in 1957. An air component, which would become 1 Canadian Air Division (1 CAD) in 1952, began moving its first units to Europe in 1951.[32]

Although Canadian political leaders did not envision nuclear acquisitions as part of this increased defence spending, events quickly brought the nuclear issue to the fore. In 1949, the Allies began drafting a series of military concepts to align acquisitions, operational planning and force contributions. After it became clear to the planners that NATO could not credibly match Soviet conventional forces in continental Europe, they increasingly relied on nuclear weapons to bridge the gap. Early NATO strategic concepts, expressed as Military Committee (MC) resolutions, stressed nuclear retaliation similar in form to the combined bomber offensive of the Second World War to deter a Soviet invasion of Western Europe.[33] During the 1950s, the nature of nuclear weapons changed, partially because of advances in physically smaller "tactical" nuclear weapons—so called because they were designed to destroy enemy formations instead of enemy cities, despite often having more power than the bombs dropped on Japan in 1945. This meant that NATO planners initially intended to use nuclear weapons not only if they *lost* the ground battle but *for the*

[32] Isabel Campbell, *Unlikely Diplomats: The Canadian Brigade in Germany, 1951-1964* (Vancouver: University of British Columbia Press, 2013), 120; Ray Stouffer, *Swords, Clunks & Widowmakers: The Tumultuous Life of the RCAF's Original 1 Canadian Air Division* (Trenton: Canadian Forces Aerospace Warfare Centre, 2015), 38-68; and Norman Hillmer and J.L. Granatstein, *Empire to Umpire: Canada and the World to the 1990s* (Toronto: Copp Clark Longman, 1994), 214-15.

[33] MC 3 pledged all members to "insure the ability to deliver the atomic bomb promptly," while MC 14/1, although somewhat coy, clearly meant nuclear weapons when it commented on "all offensive and defensive means available." See both Military Committee, "MC 3 – 19.10.1949, The Strategy Concept for the Defence of the North Atlantic Area" and Military Committee, "MC 14/1 (Final) – 9.12.1952, Strategy Guidance" in *NATO Strategy Documents,* ed. Gregory W. Pedlow, NATO Archives Online, accessed 13 and 15 April 2019, https://www.nato.int/archives/strategy.htm.

ground battle itself.[34] This shift put Canadian policy makers in a bind. Having agreed to participate in an alliance backed by American nuclear weapons, Canadian leaders now felt pressure to acquire their own nuclear systems.

Concerns about the defence of North America paralleled these developments in Europe. Although Canada conducted planning for the defence of North America using bilateral agreements outside of NATO, the military alliance depended on the effective defence of North America and especially the massive nuclear deterrent wielded by the bombers of the U.S. Air Force's (USAF) Strategic Air Command (SAC). So although the defence of Europe and the defence of North America fell under two separate organisations, NATO planning documents linked North American and European defence conceptually.[35] Canadian and American staffs, who had been conducting detailed joint planning for the defence of North America since the Ogdensburg Agreement of 1940, apprehended the growing Soviet bomber threat as early as 1947. After the USSR detonated its first nuclear device in 1949, continental defence took on a new urgency. As the Soviets fielded increasingly sophisticated technology, staffs had to adjust the joint Basic Security Plan (BSP) to keep up with these new threats. In 1951, Canada began allowing SAC overflights on a case-by-case basis and by 1957 the USAF was operating tankers and bombers out of Goose Bay.[36] In 1952, work began on an ambitious bi-national air defence system that would eventually comprise radar lines in Canada's north, a computerised detection,

[34] MC 48 noted that: "Our studies have indicated that without their immediate use we could not successfully defend Europe within the resources available [...] Therefore, in the event of a war involving NATO it is militarily essential that NATO forces should be able to use atomic and thermonuclear weapons in their defense from the outset." See "MC 48 (Final) – 22.11.1954, The Most Effective Pattern for NATO Military Strength for the Next Few Years" in *NATO Strategy Documents,* ed. Pedlow, NATO Archives Online, accessed 13 April 2019, https://www.nato.int/archives/strategy.htm. For further illustration of NATO's intention to immediately use nuclear weapons in the defence of Europe, see Military Committee, "MC 14/2 (Rev) (Final Decisions) – 23.5.1957" and "MC 14/3 (Final) – 16.1.1968" in *NATO Strategy Documents,* ed. Pedlow, NATO Archives Online, accessed 13 April 2019, https://www.nato.int/archives/strategy.htm. See also Lawrence Freedman, *The Evolution of Nuclear Strategy*, 3rd ed. (Houndmills, UK: Palgrave MacMillan, 2003), 20-27.

[35] Maloney, *Learning to Love the Bomb*, 22-23.

[36] Maloney, *Learning to Love the Bomb,* 13.

tracking and control system known as SAGE,[37] interceptors and SAM sites. After lengthy discussions, US and Canadian air defence forces were integrated under a single command, North American Aerospace Defense Command (NORAD), in 1958.

By 1957, all three services began to ask for a variety of nuclear weapons to fulfill these commitments. For continental air defence, the RCAF requested nuclear-tipped SAMs as well as nuclear air-to-air rockets. For 1 CAD, Canada's aviators argued for a nuclear role known as strike/reconnaissance, which would require nuclear gravity bombs. The soldiers wanted nuclear-tipped rocket artillery for 4 CIBG to keep up with NATO planning that incorporated tactical nuclear weapons. The sailors, for their part, sought air-dropped nuclear depth bombs and ship-launched nuclear torpedoes. John Diefenbaker, elected prime minister in 1957, struggled with this file, unsuccessfully trying to wrangle both pro- and anti-nuclear factions in his party. Indeed, a definitive account of his nuclear policy is titled *Essence of Indecision.*[38] By 1961, Canada had adopted, or had begun to adopt, a number of nuclear delivery systems to fill these roles, but without the crucial agreement on accepting warheads. At home, the RCAF received BOMARC surface-to-air missiles, CF-101 Voodoo aircraft capable of delivering MB-1/AIR-2 Genie unguided nuclear rockets. In Europe, the Canadian Army received MGR-1 "Honest John" surface-to-surface rockets for the brigade in Europe and 1 CAD received CF-104 Starfighter aircraft configured for, and committed to, the nuclear strike/reconnaissance role. Without their "physics packages," however, these systems were basically useless. Although Canada would adopt a number of nuclear-capable anti-submarine warfare (ASW) systems, it would never conclude an agreement to equip them with nuclear warheads (see Table 1).

Diefenbaker's anti-American leanings and personal dislike of American president John F. Kennedy compounded the already complicated economic, technical and political issues involved in equipping Canadian-owned systems with American warheads. Diefenbaker, who worried about American incursion into Canadian

[37] SAGE stood for "Semi-Autonomous Ground Environment" and was an early computer network not unlike the modern internet. See Maloney, *Learning to Love the Bomb*, 24.

[38] Patricia McMahon, *Essence of Indecision: Diefenbaker's Nuclear Policy 1957-1963* (Montreal and Kingston: McGill-Queen's University Press, 2009).

cultural and political life, saw no reason to spend his political capital on nuclear issues and let the matter fester. The talks ground out over several years and the interminable confusion provided Lester B. Pearson, the leader of the opposition, with the grounds to force an election in 1963. Upon gaining office, the Liberals quickly ended the drawn-out nuclear negotiations and arranged for joint custody and control of the warheads for all systems save ASW. In these arrangements, the warheads remained under joint Canadian-American security arrangements with direct contact to the warheads being controlled by American custodial detachments. In times of operational necessity, the custodial detachments would release the weapons to Canadian crews to mount on Canadian delivery systems. Service-to-service agreements and specific doctrine governed the operational employment of individual weapons; for example, the release of air defence warheads to Canadian aircraft depended on closely synchronised NORAD and Canadian air defence alert states, but the use of nuclear systems by 1 CAD was governed by specific NATO operational plans (see Table 1). Pearson's Cabinet also authorised closer air defence measures, such as allowing the dispersal of nuclear-armed US interceptors to Canadian airfields during periods of high international tension.[39]

Although Pearson accepted the warheads, he did so unenthusiastically. Accepting the warheads fulfilled a number of defence commitments, but many of these commitments, in his view, did not best serve Canada's interests. Thus, while the services began implementing the technical agreements made with their US counterparts, the government immediately began looking for non-nuclear roles. By 1972, the Liberal governments of Pearson and, after 1968, Pierre Trudeau succeeded in divesting all nuclear systems except the AIR-2 Genie.[40] This search for new roles in an evolving strategic balance would prove to be a major task for Sutherland and Lindsey in the decade ahead.

The first of Sutherland's public articles, "Canada's Long Term Strategic Situation" published in 1962, is a good starting point to

[39] The specific alert level was the NORAD "Defence Condition 3" or DEFCON 3, given during a period of "delicate or strained international relations." See Maloney, *Learning to Love the Bomb*, 194, 345.

[40] Clearwater, *Canadian Nuclear Weapons*, 58-59, 84, 92, 178, 232-33, 236-38; and Robert S. Norris and Hans M. Kristensen, "U.S. Nuclear Warheads, 1945-2009," *Bulletin of the Atomic Scientists* 65, 4 (July/August 2009): 76.

Table 1: Nuclear Weapons in Canadian Arsenals[i]

Delivery System	Weapon / Warhead	Purpose	Yield	Release Procedure	Divested
BOMARC	W40	Air Defence	7-10 kt	At DEFCON 1, defensive nuclear weapons release sought by C-in-C NORAD from designated national representatives with pre-delegation. Individual release controlled by sector commanders.[ii]	1972
CF-101B Voodoo	MB1-AIR 2 Genie / W25		1.5 kt		1984[iii]
CF-104 Starfighter	B 57 gravity bomb / W57	Tactical nuclear strike	5-20 kt (variable)	SACEUR receives US national authority to release nuclear weapons, transmits release authority to US custodial sections. Weapons employed as part of pre-designated SACEUR plans.	1972
	B 43 gravity bomb		1 Mt		
	B 28		1.45 Mt (variable)		
MGR-1 Honest John	W31	Corps-level nuclear artillery	2, 20, 40 kt (variable)	US custodial detachments to receive authorisation for release from national channels. Once released, launch of individual rockets to be controlled at the Corps level – for 4 CIBG, this was I (British) Corps.	1972
Anti-Submarine Warfare – Planned but not acquired					
CP-107 Argus (RCAF) / CP-122 Neptune (RCAF)	Mk 101 "Lulu" / W34	Anti-Submarine Warfare	10 kt	Not applicable. Although these platforms were capable of carrying American nuclear weapons, no government-to-government agreement existed for their joint custody and release in times of operational necessity.	
	Mk 105 "Hotpoint" / W34		10 kt		
	B 57 / W57		5-20 kt (variable)		
CP-121 Tracker (RCN)	Mk 101 "Lulu" / W34		10 kt		
CH-124 Sea King (RCN)	Mk 101 "Lulu" / W34		10 kt		
	Mk 105 "Hotpoint" / W34		10 kt		
ASROC (Ship mounted, Restigouche class)[iv]	Dual-capable; nuclear delivery based on Mk.46 torpedo / W44		5 kt		

[i] John Clearwater, *Canadian Nuclear Weapons*, 58-59, 84, 92, 178, 232-33, 236-38; Sean Maloney, *Learning to Love the Bomb*, 313-14, 323-38, 355-57.

[ii] There were significant technical differences between the CF-101 AIR-2 Genie and CIM-10 BOMARC in how these permissions were obtained and transmitted. For a detailed technical discussion, see Maloney, *Learning to Love the Bomb*, 345-49.

[iii] Two CF-101s were reconfigured as EF-101Bs and kept on in an electronic warfare capacity without mounting the AIR-2 until 1987.

[iv] The ASROC was acquired and mounted on RCN Restigouche-class ships in a conventional role.

understand the basis of his thinking about Canadian participation in nuclear roles during the 1960s. Written as a response to an emerging body of advocates for Canadian neutrality, Sutherland made the case for continuing a policy of alliance participation.[41] In Sutherland's view, regardless of its political alignment, Canada's strategic situation was dominated by political and economic "invariables" and "broad national interests."[42] Of these considerations, Canada's proximity to, and economic connectedness with, the United States was paramount. This closeness meant that it was basically impossible for Canada to be secure without the Americans being secure and vice versa.[43] Canadian influence depended on how much Ottawa mattered to Washington and, to a lesser extent, European capitals. But how best to matter? Sutherland tied Western security directly to the maintenance of SAC's nuclear bomber force. If Canada wanted an independent voice, it had to meaningfully participate in these important aspects of Western defence.[44] These hard invariables were complemented by softer considerations, such as a cultural affinity for Europe, which inexorably involved Ottawa in European security.[45] Whether Canadians liked it or not, they were subject to an "involuntary guarantee" of security commitments from Washington. To maintain its independent voice, Canada needed to play "a significant role in Western security" to both be "present at the table [where] we can serve our own interests" and "maintain real influence in Washington."[46]

To understand these issues further, it is necessary to understand some of the jargon involved in deterrence theory. In plain English, a "first strike" occurs when combatant "A" begins nuclear hostilities against combatant "B" in an attempt to destroy B's ability to retaliate. This usually means that the first strike would be directed against B's military forces (a "counter-force" strike). If A fails to destroy B's forces, B might use its remaining nuclear forces in a "second strike" to retaliate against A with the objective of making the retaliation as painful as possible by targeting cities (a "counter-value"

[41] Matthew P. Trudgen and Joel J. Sokolsky, "The Canadian strategic debate of the early 1960s," *International Journal* 67, 1 (2011-2012): 184, 187-88.
[42] R.J. Sutherland, "Canada's Long Term Strategic Situation," *International Journal* 17 (1962): 201.
[43] Sutherland, "Canada's Long Term Strategic Situation," 203.
[44] Sutherland, "Canada's Long Term Strategic Situation," 212-14.
[45] Sutherland, "Canada's Long Term Strategic Situation," 205.
[46] Sutherland, "Canada's Long Term Strategic Situation," 208.

strike). It is possible for both sides to have a second strike capability and, given the right technical ability and resources, both A and B might have *secure* second-strike capabilities—that is, the ability on both sides to sustain a counter-force first strike from an adversary and retaliate with a counter-value second strike. When neither side has a decisive technological or quantitative edge in defensive or offensive capabilities, the situation is balanced; when the nature of the cumulative capabilities disincentivises a first strike, it produces strategic stability.[47] Because Canada did not have an independent nuclear capability, it could not have a true nuclear strategy of its own. Even so, Ottawa had to plan around the likely actions of powers with independent nuclear deterrents, putting Canadian strategists in the unenviable position of trying to contribute to strategic stability while also having no say in the decision to launch—or not launch—a first strike. In this sense, Canadian policy required less of a nuclear strategy than a strategy involving nuclear weapons.

The state of technological development in the early 1960s required consistent investment in new technologies to encourage strategic stability. Intercontinental Ballistic Missiles, introduced in the late 1950s, showed promise in replacing the bomber as the ideal weapon for an attacker due to their speed and invulnerability to conventional air defences. Yet early ICBMs were limited in number and too inaccurate to ensure an effective first strike. By virtue of being liquid-fuelled, ICBMs were slow and vulnerable themselves, which made them a poor second-strike option. Denying Soviet bombers, which were more accurate and carried larger loads, access to SAC targets remained vital for the Americans to conduct an effective second strike.[48] Still, the trend was for ICBMs to replace the bomber as the primary means of delivery. Once that happened, a water-tight defence against nuclear strike would become impossible, requiring a new way of thinking about nuclear weapons.

"Canada's Long Term Strategic Situation" encapsulated many key concepts that drove Sutherland's and Lindsey's thinking. First was the *unity of security.* Security was tied to Canadian national

[47] Thérèse Delpech, *Nuclear Deterrence in the 21st Century: Lessons from the Cold War for a New Era of Strategic Piracy* (Santa Monica: RAND, 2012), 37-40. Delpech challenges the idea that "strategic stability" is a useful term as the US, Russia and China have yet to agree on a precise definition. This being said, the way in which the term will be used in this paper is from a Western point of view.

[48] Sutherland, "Canada's Long Term Strategic Situation," 212-14.

interests. Although NATO was not connected to NORAD formally, it was connected conceptually. Second was the *security-resource calculation.* Canada needed to recognise that it had limited resources and should conduct an unemotional calculation of how those resources could be devoted to achieving maximum security and sovereignty. There were no sacred commitments or capabilities. Finally, there was the need for *strategic-technical flexibility.* Canada could not influence larger strategic and technological trends, but it had to respond to them.

STRATEGIC CHANGES IN THE EARLY SIXTIES: A LECTURE, A REPORT, AND A WHITE PAPER

Sutherland further developed these ideas in a 1963 lecture at the National Defence College. With regard to weapons, Sutherland concluded that "[t]he important point, it seems to me, is that there isn't anything new or exciting."[49] Both the Americans and the Soviets were well on their way to developing secure second-strike deterrents and this was unlikely to change. On the other hand, as big wars became unthinkable, small wars become more likely, making conventional forces more important. During the 1950s, US President Dwight Eisenhower's administration adopted a doctrine of "massive retaliation," whereby the US would leverage its superior capacity to produce nuclear weapons as a way of saving on defence. Because the Americans could build so many nuclear weapons, the thinking went, it would be impossible for the Soviets to destroy all of them in a first strike. This gave Washington the freedom to cut back on expensive conventional forces by credibly threatening any Soviet attack on the West with an overwhelming nuclear response.[50] Robert McNamara, Kennedy's Secretary of Defense, had long criticised this doctrine on the grounds that US reliance on nuclear weapons lacked credibility because of its disproportionality. If Moscow sponsored a group of fanatical East German communists to conduct a series of cross-border raids on West German military targets, could Washington really be expected to respond with a nuclear strike? Without sufficient conventional forces, the Americans could not counter

[49] Sutherland, "Canada's Long Term Strategic Situation," 212-14.
[50] Freedman, *The Evolution of Nuclear Strategy*, 72-74.

Soviet provocations below the threshold of an all-out attack on the West. Paradoxically, without the ability to realistically respond to such provocations, the US would lose further credibility. The Kennedy administration obligingly boosted US defence spending, but mainly on non-nuclear capabilities as part of a new doctrine of "flexible response" that would give American policy leaders the widest possible range of options in a crisis.[51] Sutherland praised this new way of thinking which put the Americans at "the cutting edge of diplomacy."[52] From a Canadian perspective, however, he also warned that these capabilities were meant to bolster "US national interests and US power to maintain these interests."[53] In other words, with greater flexibility, the US would depend less on its allies, limiting their influence. These new limits had been all too apparent in Cuba.

Canadian prime ministers from both major political parties had shown a willingness to spend considerable sums on defence to gain a place at the table in Washington. During the Cuban Missile Crisis, Kennedy had shown little desire to take a seat himself. The exact chronology of the crisis will not be covered here, but it is important to review a few of the key events. By the autumn of 1962, the Canadian political debate surrounding the acceptance of nuclear warheads had stalled. The Tories came out of the June election with a shaky minority and little political incentive to push for a major policy decision before an expected vote of no confidence.[54] The only major push came from Howard Green, Diefenbaker's Secretary of State for External Affairs, who sought a third way on the question of warheads. His plan was to maintain the BOMARC SAM systems and CF-101 Voodoo interceptors that Canada had already paid for, but to keep the warheads in the US on standby

[51] Freedman, *The Evolution of Nuclear Strategy*, 218.

[52] Sutherland, "Trends in Strategic Weapons and Concepts – Lecture to the National Defence College by R.J. Sutherland," 11 March 1963, III.72, vol. 1, 87/253, Lindsey-Sutherland fonds, DHH; and William Rosenau, "The Kennedy Administration, US Foreign Internal Security Assistance, and the Challenge of 'Subterranean War,' 1961-63," *Small Wars and Insurgencies* 14, 3 (Autumn 2003): 72-73.

[53] Sutherland, "Trends in Strategic Weapons and Concepts – Lecture to the National Defence College by R.J. Sutherland," 11 March 1963, III.72, vol. 1, 87/253, Lindsey-Sutherland fonds, DHH.

[54] McMahon, *Essence of Indecision,* 146.

should they be needed in the event of an "emergency."[55] The RCAF and USAF opposed the plan on technical grounds, as transporting the warheads would require a large fleet of specialised aircraft. Moreover, claiming nuclear innocence while planning to fly in warheads to use on Canadian systems in a crisis would fool no one while simultaneously making the response slower. If Canada wanted its cake, it would have to eat it too.

Nuclear weapons and continental defence quickly became less than academic questions. Between 15 and 16 October 1962, US surveillance aircraft found Soviet SS-4 and SS-5 Intermediate-Range Ballistic Missiles (IRBMs) in Cuba. These missiles greatly worried the Americans because the IRBMs could potentially deliver an accurate first strike on SAC with almost no warning and no way to stop them. Kennedy and his administration began looking at options on 16 October and Canada was warned through intelligence channels on 20 October about the brewing crisis. It was not until 22 October that Kennedy consulted with Diefenbaker on the political level. Feeling snubbed, Diefenbaker undercut the Americans when he publicly proposed UN inspections of Cuban disarmament. The Prime Minister also dragged his feet for two days before issuing specific alert conditions to Canadian air and naval forces dedicated to NORAD and BSP commitments.[56] An embarrassed defence minister, Douglas Harkness, quietly ordered the RCAF and RCN to take alert-like measures without going on alert themselves.[57] By the time the formal alert order was issued on 25 October, it had "a hollow ring to many US officials."[58] However careful pre-crisis operational planning may have been, it could not bypass unresolved aspects of national strategy in Diefenbaker's cabinet. Even basic military problems persisted. The RCN and RCAF did not have an effective joint headquarters during the crisis, meaning that it was difficult to coordinate a *Canadian*

[55] This idea started as a potential stopgap measure by the RCAF in the event that a crisis occurred before negotiations could be completed. Green and Diefenbaker latched onto it as a way out of difficult negotiations and went as far as announcing the measure in the House before talking it over with the Americans. See Maloney, *Learning to Love the Bomb*, 262.

[56] For a good description of alert statuses, see Maloney, *Learning to Love the Bomb*, 187-96.

[57] Peter Haydon, "The Cuban Missile Crisis 50 Years Later," *Canadian Naval Review* 8, 3 (Fall 2012): 12. See also Marc Milner, *Canada's Navy: The First Century*, 2nd ed. (Toronto: University of Toronto Press, 2010), 234-35.

[58] McMahon, *Essence of Indecision,* 150.

response to the threat without involving US command linkages.[59] Defence planning had seemed almost intentionally blind to the close relationship between war and politics. If Canada had bought all kinds of expensive systems to gain the right of consultation in a crisis, then the investment seemed a bad one.

Sutherland did not speak to a great extent on the crisis itself, but his commentary on the changed strategic situation which followed it marked a new direction in his thinking on the relation of nuclear weapons to Canada's national interests. He noted that "when the period of extreme tension had passed—there was a strong reaction. This is true of France, Britain, Pakistan, certain of the South American countries and Canada."[60] He also touched on the issue of consultation. "Many Europeans," he noted, "were no less impressed by the fact that the USA acted without consultation with its European allies, and that if the Cuban incident had led to all-out war Western Europe would have participated in the disaster."[61] When it came to questions of splitting atoms and splitting cities, Washington would do what was best in a narrow conception of its own self-interest. After being elected with a minority government in April 1963, Pearson attempted to chart a new way forward. Having used the issue of nuclear weapons as a means to pound the Tories both in the House and during the election, his government quickly agreed to accept warheads for air defence and NATO commitments to Europe, with a long-term goal of finding non-nuclear roles. It was with this in mind that Pearson "initiated a searching review of defence programmes and activities."[62] Paul Hellyer, Pearson's defence minister from 1963 to 1967, did not trust normal channels to undertake sufficiently creative thinking on defence policy. Instead, he named two ad-hoc committees: the Ad Hoc Committee on a Mobile Force, chaired by Brigadier H.Q. Love, and the Ad Hoc Committee

[59] Peter C. Haydon, *The 1962 Cuban Missile Crisis: Canadian Involvement Reconsidered* (Toronto: Canadian Institute of Strategic Studies, 1993), 219-21.

[60] Sutherland, "Trends in Strategic Weapons and Concepts – Lecture to the National Defence College by R.J. Sutherland," 11 March 1963, III.72, vol. 1, 87/253, Lindsey-Sutherland fonds, DHH.

[61] Sutherland, "Trends in Strategic Weapons and Concepts – Lecture to the National Defence College by R.J. Sutherland," 11 March 1963, III.72, vol. 1, 87/253, Lindsey-Sutherland fonds, DHH.

[62] Lucien Cardin, "Address by the Hon Lucien Cardin, Associate Minister of National Defence, to the National Defence College," July 1963, 5.7, vol. 1, 87/253, Lindsey-Sutherland fonds, DHH.

on Defence Policy, chaired by Sutherland. While Love's committee looked at the specifics of equipping a globally deployable force, Sutherland's committee examined Canada's defence policy more broadly. Sutherland is described by historian Peter Kasurak as the "only star" on the committee and its final report came to be known as the Sutherland Report.[63]

The report injected a dry realism about Canada's power into policy circles, driving a look at security-resource allocations in an unsentimental way. Sutherland attributed Canada's outsized post-war influence to two unique circumstances—namely, the destruction of much of Europe's industrial plants during the Second World War and a booming post-war economy that powered high defence spending during the 1950s. These conditions no longer existed. Canada simply could not afford to maintain its current defence commitments without a significant increase in defence spending to offset climbing real costs.[64] Moreover, the growth of European economies meant that Canada's relative power was in decline. With this in mind, a strict triage, which reflected the unity of security, was in order. The top priority was the defence of North America, then that of the "North Atlantic Community" (i.e. NATO), then "the rest of the world" (UN and perhaps Commonwealth commitments).[65] As George Lindsey later noted, this change in the strategic situation moved DRAE away from a technical focus and further towards "a new type of defence research, involving strategic and social studies."[66] A wider view would focus less on the *absolute* effectiveness of individual systems and more on the *relative* benefit of maintaining one capability over another.

The Sutherland Report reflected this change in thinking. Canada did not possess an independent nuclear deterrent and had no desire to build one. By not doing so, Canada abandoned any ability to realistically remain neutral in a world conflict. Its geographic proximity to, and close economic integration with, the US meant that "Canada's interests are identified with those of the United States

[63] Kasurak, *A National Force*, 77; and "Report of the Ad-Hoc Committee on Defence Policy," 30 September 1963, III.61, vol. 8, 87/253, Lindsey-Sutherland fonds, DHH.
[64] Kasurak, *A National Force,* 12-13, 29-30, 75-76.
[65] "Report of the Ad-Hoc Committee on Defence Policy," 30 September 1963, 11, III.61, vol. 8, 87/253, Lindsey-Sutherland fonds, DHH.
[66] George R. Lindsey, "The Contribution of Operational Research to National Defence (1979)," in Wiseman, *The Selected Works of George R. Lindsey*, 30.

beyond any possibility of disentanglement."[67] This also meant that the nation relied on two nuclear-enabled alliances to guarantee its security: NATO, which used nuclear weapons in its doctrine and planning, and NORAD, which was designed to protect the nuclear deterrent provided by SAC. Canada, in the report's words, "cannot be a member of a military alliance and at the same avoid responsibility for the strategic policies which give it reality."[68] If a major war came, Canada would be involved; its use of American warheads was largely a technical one. This cool appreciation of technical impacts on the options open to Canadian decision makers challenges Simpson's assertion that the "defenders" advocating for continued participation in the nuclear aspects of Western alignment worked off a combination of Second World War sentimentality, fear of diplomatic censure and "deep-seated loyalty to the United States."[69] Though personal experience certainly played a part, the pro-nuclear camp had a strong technical rationale based on reasonable assumptions about Canada's place in the international order. Then again, Canada's participation in these alliances was a political decision that inevitably brought wider political factors into the decision-making process in the first place. As the political and the technical imperatives pulled further apart, decisions would become harder and harder to make.

Decisions about air defence systems were the easiest to make because they were the most technical in nature. Although ICBMs were set to replace manned bombers as the principal means of nuclear weapons delivery in the coming decade, bombers still provided greater accuracy and lower cost per megaton to deliver, meaning that the ability to defend against them constituted an important part of preserving SAC's retaliatory capability. If those defensive systems used nuclear warheads, so be it. As the Soviets continued to invest less in bombers than in missiles, the utility of an absolute defence against an assault from aircraft diminished, especially given the enormous cost of maintaining multiple lines of radar stations and SAM batteries. Eventually, warning would come to mean a lot more than a strict defence and that warning could eventually be provided

[67] "Report of the Ad-Hoc Committee on Defence Policy," 30 September 1963, 56, III.61, vol. 8, 87/253, Lindsey-Sutherland fonds, DHH.
[68] "Report of the Ad-Hoc Committee on Defence Policy," 30 September 1963, 37, III.61, vol. 8, 87/253, Lindsey-Sutherland fonds, DHH.
[69] Simpson, *NATO and the Bomb*, 184-89.

at far lower a cost through the use of new radar technologies.[70] In a morbid pro and con, nuclear devastation was now unavoidable in the event of general war but, short of the apocalypse, increasingly scarce cash could be freed for other uses.

Canada's nuclear role in NATO proved to be the most politically complex issue. Ottawa had deployed a brigade and an air division to Europe permanently in 1951, before NATO's embrace of tactical nuclear weapons. By 1955, NATO planners began reorienting towards a heavy reliance on tactical nuclear weapons and in 1958 the Military Committee approved new force goals in a document known as MC 70 to reflect this new reality. MC 70 put Canadian policy makers in a bind: they had committed a conventional brigade and air division in 1951 with no expectation of nuclear entanglements; now they were being asked to take on substantial nuclear roles in the form of a battery of tactical nuclear rockets for Canada's NATO brigade and to take on the nuclear "strike/reconnaissance" role for 1 CAD.[71] Cabinet duly ordered the CF-104 Starfighter for 1 CAD in 1959 and MGR-1 Honest Johns for 4 CIBG in 1960.[72] Because of the Diefenbaker government's fence-sitting, by the time the platforms were equipped with warheads in 1963-4, the Americans were pushing for more conventional forces to allow for a new doctrine of flexible response designed to slow nuclear escalation. Technologically, the new rage was precision conventional weapons and Canada had failed to keep pace.[73]

4 CIBG had finally become nuclear-capable, but the delay irritated the Americans and limited their political payoff. Domestically, the weapons became operational just as their popularity with the

[70] "Report of the Ad-Hoc Committee on Defence Policy," 30 September 1963, 82-83, III.61, vol. 8, 87/253, Lindsey-Sutherland fonds, DHH.

[71] Campbell, *Unlikely Diplomats*, 156-58, 166-67. Technically, it was one-third of a division, which can be translated a brigade. For aircraft, Canada was expected to maintain one squadron of twenty-five aircraft for LB/FB (Light Bomber/Fighter Bomber) strike and one squadron of LB/FB attack in 1958, with LB/FB attack growing to three squadrons by 1961. See Military Committee, "MC 70 – The Minimum Essential Force Requirements, 1958-1963," 29 January 1958, 248, 274, NATO Archives Online, accessed 30 May 2020, http://archives.nato.int/uploads/r/null/1/0/105221/MC_0070_ENG_PDP.pdf; and Maloney, *Learning to Love the Bomb*, 164.

[72] Maloney, *Learning to Love the Bomb*, 151, 160.

[73] "Report of the Ad-Hoc Committee on Defence Policy," 30 September 1963, 14-15, 29-33, 35, 61, III.61, vol. 8, 87/253, Lindsey-Sutherland fonds, DHH.

Canadian public waned and their military utility declined.[74] Although Canadian troops remained an important political commitment to the Europeans, the security-resource payoff of an expensive, nuclear-armed mechanised brigade was weakening. Sutherland's committee recommended a re-evaluation of Canada's ground commitment and looked at a number of alternatives. The options included committing troops to European defence but basing them in Canada;[75] creating a self-projecting "triphibious" force of roughly a brigade group strength to respond to crises on NATO's flanks;[76] re-negotiating Canadian commitment to SACEUR from a standard brigade to air-transportable reinforcements;[77] and finally, transforming the large central front commitment into a prospective NATO mobile force co-located with Canadian air assets.[78] One option, the relocation of the brigade to a less prominent position near Canadian airfields in southern Germany, would have given a stronger national character to the commitment and involved a reduction in size—not to mention a non-nuclear role.

[74] Public support for nuclear weapons dropped considerably during the 1960s. In 1963, 58% of respondents agreed that Canadian forces should be nuclear armed; by 1968, that number fell to 41.7%. Gallup Canada Inc., "Dataset: Canadian Gallup Poll, March 1963, #301," <odesi> Database, accessed 12 April 2019, http://odesi2.scholarsportal.info/webview/index.jsp?object=http://142.150.190.128:80%2Fobj%2FfStudy%2Fcipo-301-E-1963-03&mode=documentation&v=2&top=yes; Gallup Canada Inc., "Dataset: Canadian Gallup Poll, June 1966, #319," <odesi> Database, accessed 12 April 2019, http://odesi2.scholarsportal.info/webview/index.jsp?object=http://142.150.190.128:80%2Fobj%2FfStudy%2Fcipo-319-E-1966-06&mode=documentation&v=2&top=yes. Notably, a 1968 poll still showed a strong majority (71.3%) of respondents supported Canadian troops remaining in Europe. See Gallup Canada Inc., "Dataset: Canadian Gallup Poll, October 1968, #332," <odesi> Database, accessed 12 April 2019, http://odesi2.scholarsportal.info/webview/index.jsp?object=http://142.150.190.128:80%2Fobj%2FfStudy%2Fcipo-332-E-1968-08&mode=documentation&v=2&top=yes; and "Report of the Ad-Hoc Committee on Defence Policy," 30 September 1963, 33, III.61, vol. 8, 87/253, Lindsey-Sutherland fonds, DHH.

[75] "Report of the Ad-Hoc Committee on Defence Policy," 30 September 1963, 17-20, III.61, vol. 8, 87/253, Lindsey-Sutherland fonds, DHH.

[76] "Report of the Ad-Hoc Committee on Defence Policy," 30 September 1963, 120-27, III.61, vol. 8, 87/253, Lindsey-Sutherland fonds, DHH.

[77] "Report of the Ad-Hoc Committee on Defence Policy," 30 September 1963, 127-30, III.61, vol. 8, 87/253, Lindsey-Sutherland fonds, DHH.

[78] "Report of the Ad-Hoc Committee on Defence Policy," 30 September 1963, 150-52, III.61, vol. 8, 87/253, Lindsey-Sutherland fonds, DHH.

Strikingly, this option was roughly analogous in many ways to the downsizing of the brigade from 1969 to 1972.[79]

The report noted a number of technical issues with the strike/reconnaissance role. For one, the committee estimated that the CF-104 would likely approach the end of its service life somewhere between 1969 and 1972 with an absolute end date of no later than 1975 (in the end, they flew until 1987).[80] Moreover, the advent of a Soviet second strike deterrent made the chances of a NATO first strike extremely low as there was no logical way that NATO could employ nuclear weapons against the Soviets without facing nuclear devastation themselves. The Starfighters, then, were likely vulnerable to either an early nuclear strike or increasingly effective enemy air defences if they survived the wave of Soviet attacks. Surface-to-surface missiles would be a cheaper and more survivable option if Canada wanted to continue in a nuclear delivery role.[81] Thus, it made sense to switch 1 CAD to a "general tactical air support" platform, ideally the F-4 Phantom II sometime in 1969, with an intermediate period of using the CF-104s in a conventional role.[82]

The careful weighing of options in the report paved the way for the *1964 White Paper on Defence*. NATO commitments remained largely the same, but the document indicated that change was desirable. The white paper lifted its passages on nuclear commitments almost verbatim from the Sutherland Report, concluding that "[h]aving accepted the responsibility for membership in a nuclear-armed

[79] It is unlikely that Sutherland had cuts in mind that went as deep as Trudeau's did: halving of the force to 2,800 troops. The mobile force would have also likely been air transportable, as opposed to merely the watered-down version of the mechanised force that remained after the Trudeau cuts. See J.L. Granatstein, *Canada's Army: Waging War and Keeping the Peace* (Toronto: University of Toronto Press, 2002), 363-64.

[80] Sutherland, "Trends in Strategic Weapons and Concepts – Lecture to the National Defence College by R.J. Sutherland," 11 March 1963, III.72, vol. 1, 87/253, Lindsey-Sutherland fonds, DHH. The CF-18 was selected as a replacement in 1984 for the CF-101, CF-5 and CF-104 but took time to phase in. By the end of its service life, the CF-104 had had an extremely high mishap rate of 18.5 incidents per 100 flight hours (in contrast, the CF-18 had a predicted rate of 5.6 and an actual rate in the first ten years of usage of 7.14). See Richard Shimooka, "Training at the Edge: The Canadian Air Force's Transition to the CF-18, and Lessons Learned for Canada's Next Generation Fighter," *Canadian Military Journal* 15, 4 (Autumn 2015): 31.

[81] "Report of the Ad-Hoc Committee on Defence Policy," 30 September 1963, 97, III.61, vol. 8, 87/253, Lindsey-Sutherland fonds, DHH.

[82] "Report of the Ad-Hoc Committee on Defence Policy," 30 September 1963, 99-100, 119, III.61, vol. 8, 87/253, Lindsey-Sutherland fonds, DHH.

alliance, the question of nuclear weapons for the Canadian armed forces is a subordinate issue. It depends how we can most effectively contribute to collective strength."[83] Understood in this context, air defence was framed in terms of the less important role of the bomber: while still vital, its value would "gradually decline" over the course of the decade as the ICBM threat grew and the likelihood of a cost-effective defence against ICBMs remained low.[84]

The discussion of Canadian nuclear delivery systems allocated to NATO commitments was less technical and more political. Although the new policy kept NATO commitments, it framed them in political, not military, terms:

> [the brigade's] presence, moreover, has a political significance for the Alliance, and its withdrawal from front-line positions at this time could be misinterpreted – by both our European allies and the Soviet bloc. The importance to the Alliance's solidarity of Canadian 'presence' in the NATO defence forces is real [...] chang[e] [should happen] gradually, in conformity to a relatively long term plan of action.[85]

In contrast to the public white paper, the classified Sutherland Report had advocated for long-term doctrinal development to pave the way towards lighter, more mobile and crucially non-nuclear forces as an effective contribution to NATO's strength, allowing Ottawa's contribution to "accor[d] with Canada's geographic location and other Canadian defence interests."[86]

The white paper contained no such ambiguity about the air division. Canada would phase out the strike/reconnaissance role, allow the CF-104 squadrons to attrite and look for a "high performance aircraft [...] to provide sufficient flexibility for any task we might undertake from ground attack to air surveillance."[87] The Sutherland Report noted that a Canadian air presence in Europe, especially in terms of infrastructure, would be required to allow for rapid reinforcement of fighter squadrons from aircraft based in Canada. Because the RCAF

[83] Department of National Defence, *White Paper on Defence* (Ottawa: Queen's Printer, 1964), 13.
[84] Department of National Defence, *White Paper on Defence* (1964), 14.
[85] Department of National Defence, *White Paper on Defence* (1964), 21.
[86] "Report of the Ad-Hoc Committee on Defence Policy," 30 September 1963, 160-61, III.61, vol. 8, 87/253, Lindsey-Sutherland fonds, DHH.
[87] Department of National Defence, *White Paper on Defence* (1964), 22.

operated separate specialised fleets—the CF-101 in Canada and CF-104 in Europe—Ottawa could not reinforce Europe smoothly in the event of a regional crisis. It therefore made sense to move towards a multi-role aircraft, which made the specialised CF-104 impracticable. The white paper, by emphasising flexibility provided by a single fleet, reflected the Sutherland Report's emphasis on framing commitments with the unity of security in mind. Sean Maloney argues that the CF-104 continued to have military relevance vis-à-vis missiles despite the criticisms of contemporary observers and that phasing out strike/reconnaissance was misguided for both technical and operational reasons.[88] On a tactical level, Maloney is correct, but misses Sutherland's larger point: strike/reconnaissance was not a wise use of diminishing military resources in a Canadian national context. The report further emphasised the Canadian perspective when it recommended that the air division "be associated [...] more directly with the army brigade group in Europe."[89]

Despite the innovative thinking in the Sutherland Report and the political weight of a fresh white paper, the years between 1964 and 1968 saw no significant movement on the nuclear weapons question. 4 CIBG retained its role as a heavy mechanised formation backed by Honest Johns. A weak policy process turned the CF-104 replacement into a fiasco, with the RCAF receiving the nearly useless CF-5 in 1968—an aircraft so underwhelming that it never managed to replace the Starfighter, which stayed in Canadian inventory until it was replaced by the CF-18 in the 1980s.[90] "Vested interests in the Department," Sutherland lamented in 1964, seemed to inject an insurmountable inertia to a real, rational reform of dispersed commitments.[91] With the government focussed on a range of other issues, from healthcare to a new flag, departmental resistance and the military issues associated with implementing unification, it was

[88] Maloney, *Learning to Love the Bomb*, 25-26.

[89] Department of National Defence, *White Paper on Defence* (1964), 22-23.

[90] R.J. Sutherland, "Budgeting and programming as tools of defence management," 21 October 1963, 1-5, III.7, vol. 5, 87/253, Lindsey-Sutherland fonds, DHH; Program Study Group, "Planning Programming, Budgeting in the Department of National Defence," November 1966, III.55, vol. 8, 87/253, Lindsey-Sutherland fonds, DHH; Ray Stouffer, "Cold War Air Power Choices for the RCAF: Paul Hellyer and the Selection of the CF-5 Freedom Fighter," *Canadian Military Journal* 7, 3 (Fall 2006): 64-65;and Stouffer, *Swords, Clunks and Widowmakers,* 111-12, 145.

[91] R.J. Sutherland to VCDS [Vice Chief of the Defence Staff] (presumed), untitled memo, 20 February 1964, III.16, vol. 5, 87/253, Lindsey-Sutherland fonds, DHH.

unlikely that any sane politician would force a review of perennially difficult nuclear questions. As Sutherland put to the Vice Chief of the Defence Staff in 1966:

> There are certain questions answers to which would greatly simplify our problems. These include the future of our forces in Europe, whether or not we are going to continue to the NORAD agreement, and the precise nature of the commitment with respect to peace-keeping and strategically mobile forces. *But the fact is that no Government in its right mind is going to commit itself on these questions* [emphasis added].[92]

TRUDEAU, THE DEFENCE REVIEW AND A NEW WHITE PAPER

Although Sutherland was a key part of DRAE, he was not the entirety of the organisation. This became painfully clear after he died at work during one of his 15-hour workdays on 4 January 1967 at the age of forty-five.[93] George Lindsey replaced him later that month.[94] Sutherland departed at an inopportune time as Pierre Trudeau joined the Cabinet as Minister of Justice three months later. Over the next year, the new minister developed an inner circle of policy advisors who quickly progressed from constitutional questions into those of defence and foreign policy, often with radical conclusions. Trudeau became the leader of the Liberal Party in April 1968, followed the next year by an election where he gained the first majority government since 1962. Diefenbaker and Pearson had annoyed planners with their hedging, but Trudeau would frighten them with his resolve.

Over the next three years, Trudeau demanded a return to first principles in defence policy and proved to be remarkably malleable in his views when a clearly argued rationale for a particular policy could be made. One issue where this malleability showed itself was NATO membership. There is some dispute as to just how much

[92] R.J. Sutherland to VCDS, "Memorandum – Program Analysis," 14 September 1965, III.16, vol. 5, 87/253, Lindsey-Sutherland fonds, DHH.
[93] Lee and Bellamy, "Dr. R.J. Sutherland: A Retrospective," n.d., 3, III.0, vol. 5, 87/253, Lindsey-Sutherland fonds, DHH.
[94] DRB, "Announcement by Defence Research Board," 24 January 1967, II.4, vol. 1, 87/253, Lindsey-Sutherland fonds, DHH.

of a NATO-sceptic Trudeau had been upon assuming power, but there was no denying that he was, at some point, less than friendly towards Canadian troops in Europe. This was especially true of his foreign policy advisor, Ivan Head.[95] Nonetheless, by the end of the review process, Canada remained in NATO and the Canadian troop commitment to Europe, although reduced, remained as well. On the one hand, Trudeau was constrained by his ministers. Early in the process, when he tabled a paper to Cabinet that proposed slashing the armed forces defence minister Léo Cadieux, cowed him by threatening to resign on the spot.[96] On the other hand, the new prime minister seemed genuinely interested in being convinced one way or another. He often described Cabinet meetings as university-style "seminars," injecting contrarian positions into the mix when he felt that representatives from the ministries of defence or external affairs were unwilling to do so, moving the discussion along until a consensus was reached.[97] When given a solid rationale, he changed his mind, at least in degree if not direction. Donald MacDonald, who took over as defence minister in September 1970, had argued heavily against any NATO commitment during the reviews—a position that would have seemed natural and logical to the Trudeau of 1968. Not long after, he found the Prime Minister "scandalisé" by his views.[98]

Such an emphasis on a coherent ends-means justification would have been music to Sutherland's ears and proved to be a challenge for George Lindsey's able mind. From the election in the summer of 1968 until the first major defence policy announcement in the spring of 1969, the first battle in a long confrontation between the

[95] Head would describe Trudeau as "not a hawk" on NATO, especially after a 1969 trip to see the "old guard" in Europe. He did confirm, however, that Trudeau was hostile to the nuclear strike role. Donald MacDonald held that Trudeau "did not share [MacDonald's strong anti-NATO views] very strenuously." Paul Hellyer was convinced that Trudeau was committed to pulling Canadian troops out of Europe in 1968, if not pulling out of the alliance altogether. He recollected that Trudeau told him that "if he had his heart's desire, he would pull the troops out." See Ivan Head, interviewed by Robert Bothwell and J.L. Granatstein, 6 August 1987, Accession 20150335, George Metcalf Archival Collection, MHRC; Donald MacDonald, interviewed by Robert Bothwell and J.L. Granatstein, 5 April 1988, Accession 20150335, George Metcalf Archival Collection, MHRC; and Paul Hellyer, interviewed by Robert Bothwell and J.L. Granatstein, 6 November 1987, Accession 20150335, George Metcalf Archival Collection, MHRC.

[96] Granatstein and Bothwell, *Pirouette,* 4.

[97] Granatstein and Bothwell, *Pirouette*, 11-21.

[98] Granatstein and Bothwell, *Pirouette*, 15-16, 24-29.

pro-alignment faction— which included most of DND and DEA— and a neutralist faction—primarily a group of select ministers and advisers close to Trudeau—raged on over the issues of NORAD and NATO membership. While Mitchell Sharp, Trudeau's first foreign minister, ordered an interdepartmental Special Task Force on Europe (STAFEUR) to produce a review of Canadian policy towards NATO, DND began a military-focussed defence policy review (DPR).[99] These processes produced a series of letter-denominated "options" composed of non-aligned choices (A through D), aligned options (E through G) and add-ons (H and I) to support the UN and possibly even missions with the Southeast Asia Treaty Organisation (SEATO), the Organisation of American States (OAS) and the Commonwealth (see Table 2). This kind of options-based analysis was perfectly suited for the DRB, and DRAE more specifically, and the Board's support came in many forms. Lindsey's direct advice to Cabinet dealt with specific technical and theoretical issues; for example, he briefed the Cabinet on air defence in September 1968, helping to shape early thinking on the subject. Often, the language used in these briefings was directly reflected in public policy statements.[100] The DRB also received drafts of the policy review from the Deputy Minister for technical advice on everything from strategic mobility to force composition. Notably, DPR discussions included nuclear weapons, but never as an isolated subject.[101]

Trudeau's hopes to get the defence review done by November 1968 proved to be too ambitious. For one, conducting a defence review without conducting a general foreign policy review was impracticable; STAFEUR had a limited scope and would not be completed until February 1969.[102] The DPR came out the same month, setting the stage for the first major battle: a dramatic series of Cabinet meetings that began on 29 March that pitted pro-NATO and anti-NATO factions against each other, with salvoes of papers, counter-papers

[99] Earlier reviews were completed but considered inadequate. See Granatstein and Bothwell, *Pirouette*, 3-39.

[100] J.S. Nutt to Basil Robinson, "OPMA SITREP," 12 September 1968, 40.1968(3), vol. 3173, RG 25, Library and Archives Canada (LAC).

[101] G.R. Lindsey to Section Heads, DRAES 220-1 (C/DRAE), "Analytical Contribution to Defence Policy Review," 3 February 1969, II.12.2, vol. 2, 87/253, Lindsey-Sutherland fonds, DHH.

[102] STAFEUR, "Canada and Europe: Report of the Special Task Force on Europe," February 1969, 36.1969.2, vol. 3171, RG 25, LAC; and C.J. Marhsall to Nutt, "Memo: Defence Policy Review," 11 September 1968, 2.16, vol. B41-1, MG 31, LAC.

Table 2: DPR Options[v]

Option	Name	Commitment			Role of Armed Forces
		NATO	NORAD	UN	
A	"Light" Non-alignment	No	No	No	Internal security only
B	"Medium" Non-alignment	No	No	No	Surveillance and control of territory; able to counter "minor" incursions
C	"Heavy" Non-Alignment	No	No	No	Defence against external attack
D	Participatory Non-Alignment	No	No	Participation in peacekeeping	Defence against external attack, capable of projection of peacekeeping ops
E	Bilateral alignment with US	Probably	Maybe (primarily to maintain contact with US)	Not defined	Not well defined, but focussed on North America
F	Active NATO / Passive NORAD	Yes – force levels not defined	Yes – "passive" only	Not defined	Internal security, surveillance and control of territory. NATO focus
G	Active NATO / Active NORAD	Yes – force levels not defined	Yes – force levels not defined	Not defined	Internal security, surveillance, control, "meaningful" contribution to both European and North American defence
H	Peacekeeping add-on	N/A	N/A	Yes	Additional peacekeeping capability to be added on to options E-G
I	Asia / Caribbean add-on	N/A	N/A	N/A	Able to contribute to SEATO, ops in Caribbean, OAS or ANZUS (the Australia-New Zealand-US defence pact)

[v] Marcel Cadieux to Mitchell Sharp, "Memorandum for the Minister – The Defence Policy Review," 28 November 1968, vol. 3173, RG 25, Library and Archives Canada.

and bitter confrontations. The battle climaxed with a provisional statement to the media on Canadian defence policy that the Prime Minister planned to announce ahead of NATO meetings in May.[103]

The DPR was a discussion paper, not an executive document. All the same, the degree to which it was permeated by Sutherland's and Lindsey's ideas and the lengths to which its language was replicated in subsequent policy statements highlights just how important DRAE's analysis was in shaping decisions about denuclearisation. In terms of nuclear weapons generally, the DPR noted that the

[103] Granatstein and Bothwell, *Pirouette,* 21-25; and P.E. Trudeau, "A defence policy for Canada: Statement to the press on April 3 1969," 3 April 1969, 20.7, vol. 4, 87/253, Lindsey-Sutherland fonds, DHH.

advent of plentiful, reliable ICBMs in hardened launch sites and a new generation of Submarine-Launched Ballistic Missiles in the mid-1960s had "brought about a radical alteration of the strategic situation."[104] This new environment made winning a nuclear war virtually impossible. Instead of preparing for a conflict, nuclear powers now increasingly sought a mix of capabilities that ensured strategic stability. Moreover, this balance had a strong economic component: "should B's countermeasure cost him five times as much as A's measure, B will be penalised in his opportunity to use the resources for other purposes in his defence program."[105] Military effectiveness on its own was no longer a guarantee of safety and attempts to achieve it would be counterproductive if they merely led to bankruptcy.

The section of the DPR on air defence reflected much of Lindsey's and Sutherland's evolving thinking on the subject. Because the goal became the maintenance of strategic stability, the central aim of air defence became to disincentivise the Soviets from building a new generation of bombers. To do that, North American air defence forces had to prevent the Soviets from using their current bombers, or any aircraft that the Soviets might develop in the near future, from delivering a first strike on American nuclear forces. Previously, a new generation of Soviet bombers meant that the US and Canada had to invest large sums in updating interceptor fleets. By emphasising detection, Canada could invest in new airborne radar technologies that would detect almost any foreseeable class of aircraft without having to upgrade interceptor fleets. By having just enough in terms of hard air defence to prevent a massive, undetected first strike, the Canadian military could secure Canadian airspace without stressing its economy. It naturally followed that the DPR recommended phasing out nuclear weapons for air defence as better detection technologies were phased in.[106] Though the defence review was collectively authored, the origin of this analysis can be inferred by a presentation given to the House of Commons Standing Committee on External Affairs and Defence by Lindsey in May 1969 where he listed the benefits of this

[104] "Defence Policy Review," February 1969, 11, 8.13, vol. 2, 87/253, Lindsey-Sutherland fonds, DHH.
[105] "Defence Policy Review," February 1969, 12-13, 8.13, vol. 2, 87/253, Lindsey-Sutherland fonds, DHH.
[106] "Defence Policy Review," February 1969, 13-15, 85, 8.13, vol. 2, 87/253, Lindsey-Sutherland fonds, DHH. See also Maloney, *Learning to Love the Bomb,* 25.

technology, with both documents warning against action that might encourage the Soviets to build "a new generation of bombers."[107]

The inclusion of both technical and economic factors into the discussion of Canada's European commitments had a strong resemblance to previous DRAE studies. In the short term, the review noted that continuing the strike/reconnaissance role would be the cheapest. However, since the CF-104 was expected to be obsolete by 1978, it made sense at that point to find a new role for Canadian aviators in Europe, such as air defence, air superiority or air transport.[108] As we have seen, these questions were nothing new. As for ground commitment, the document mostly rehashed discussions in the Sutherland Report: it compared the benefits of air-transportable versus mechanised forces, as well as the possibilities and problems with relocating to a base "west of the Rhine."[109] Importantly, it noted that 4 CIBG would have to either be re-equipped to properly fulfill its Central Front role or find a new role between 1974 and 1978. The brigade's Centurion tanks were starting to look very dated and the Americans would begin replacing their Honest Johns with the MGM-52 Lance in 1972.[110] Maintaining the NATO status quo, then, was a positive choice requiring significant capital investment. This was the kind of global analysis, based on strategic-technical flexibility and a firm security-resource calculation, that Sutherland had been calling for since 1963.

The first major battle over defence policy ended with Trudeau's statement to the media on 3 April 1969. Although reductions would be coming, Canada would remain in NATO and would continue to commit forces to Europe. At the core of the statement was a new listing of priorities for the armed forces:

[107] Lindsey, *Strategic Weapons Systems, Stability, and the Possible Contribution by Canada*, 33-36. See also "The Defence Policy Review," February 1969, 14, 8.13, vol. 2, 87/253, Lindsey-Sutherland fonds, DHH.

[108] "The Defence Policy Review," February 1969, 101-02, 8.13, vol. 2, 87/253, Lindsey-Sutherland fonds, DHH.

[109] "The Defence Policy Review," February 1969, 102-03, 8.13, vol. 2, 87/253, Lindsey-Sutherland fonds, DHH.

[110] Stephen A. Gomes, "Tactical Nuclear Weapons in the Cold War Era…A Blast from the Past," *Combating WMD Journal* 3 (2009): 51; and "MGR Honest John (M31 / M190)," Jane's IHS, accessed 8 April 2019, https://janes.ihs.com/Janes/Display/jsws0591-jsws.

> a) the surveillance of our own territory and coast-lines [...]
> b) the defence of North America in co-operation with United States forces;
> c) the fulfilment of such NATO commitment as may be agreed upon; and
> d) the performance of such international peacekeeping roles as we may, from time to time, assume.[111]

This was an inversion of the priorities of the 1964 white paper, which put peacekeeping on top, and has been condemned by John English and others as unwarranted political meddling in military thinking.[112] On one level, the new priorities came out of an intensely political process. But it was a technically-informed political process and DRAE studies had listed a similar order of priorities for increasingly scarce defence resources as far back as 1963, when a programming study listed the following as a priority for resource allocation:

1. Defence of Canada
2. Continental Air Defence
3. Defence of NATO Europe
4. Maritime Warfare
5. UN forces[113]

A balance of probabilities suggests that Lindsey's and Sutherland's thinking had an impact on the re-prioritisation of Canadian defence commitments during the DPR. Concerns about a mismatch among priorities, means and roles had circulated among Canadian strategists throughout the 1960s. Further, it is also clear that Sutherland's and Lindsey's ideas had a wide enough exposure at enough levels of government to make a real impact on thinking about these problems. Sutherland's idea of an "involuntary guarantee," for example, came up in a 1987 interview with John F. Anderson, who contributed to the DPR and went on to become Assistant Deputy Minister for Policy in 1978. Moreover, the similarity in wording between elements of the DPR and Lindsey's presentation to SCEAND suggests that many DRAE contributions to the report survived the bureaucratic

[111] Trudeau, "A defence policy for Canada: Statement to the press on April 3 1969," 3 April 1969, 20.7, vol. 4, 87/253, Lindsey-Sutherland fonds, DHH.
[112] English, *Lament for an Army*, 52-53; and Granatstein and Bothwell, *Pirouette*, 237.
[113] Sutherland, "Budgeting and programming as tools of defence management," 21 October 1963, 15-16, III.7, vol. 5, 87/253, Lindsey-Sutherland fonds, DHH.

"churn" virtually unharmed, with the result that both their ideas and their language shaped official policy documents. The DPR was only the first battle and the campaign continued as External Affairs led a more comprehensive foreign policy review while DND forged ahead with a new white paper, *Defence in the '70s,* released in August 1971.

Donald MacDonald oversaw the drafting of *Defence in the '70s* after taking over as defence minister in September 1970. Despite being sceptical of NATO, MacDonald was constrained by the Prime Minister's statement of 3 April 1969. NATO membership was settled, no further troop cuts were contemplated and no more money was coming. Moreover, MacDonald and his advisors did not operate in isolation. The "seminars" continued as did Trudeau's direct participation in policy development—his relentless push for conceptual clarity would keep DRAE busy. In a memorandum to Cabinet on 3 November 1969, the Prime Minister addressed the renewal of the SAC overflights and refuelling agreement and suggested a review of arrangements that allowed for the dispersal of US interceptors to Canadian airfields during an emergency. Could continued Canadian support be misconstrued as assistance to a US first-strike capability? He then proposed that "Canadian territory be used solely for purposes which are defensive in the judgement of the Government of Canada."[114] The DRAE commentary on these concerns, and the final wording of the white paper on this issue, suggests how much of an influence Lindsey had on the final product. In a draft commentary, DRAE took issue with the word "defensive." In the nuclear context, Lindsey argued that "'defensive', and its opposite 'offensive' are terms so easily capable of manipulation as to be the source of endless argument and confusion."[115] Lindsey returned to his position from the DPR: what mattered was maintaining the strategic balance and disincentivising further Soviet bomber or submarine production.[116] He put forth an alternative wording for a policy statement where, instead

[114] Granatstein and Bothwell, *Pirouette,* 236-37; and Pierre Trudeau to Léo Cadieux, "North American Defence Policy," 3 November 1969, II.8.11b, vol. 1, 87/253, Lindsey-Sutherland fonds, DHH.

[115] G.R. Lindsey, "Early Draft of Commentary on the PM's Memo for Cabinet on North American Defence," 14 November 1969, II.8.10, vol. 1, 87/253, Lindsey-Sutherland fonds, DHH.

[116] G.R. Lindsey (presumed), "Draft – Defence, Offence and Deterrence," 17 November 1967, II.8.11, vol. 1, 87/253, Lindsey-Sutherland fonds, DHH.

of "defensive" roles, Canada would take on those "purposes which in the Canadian government contribute to the maintenance of peace and the deterrence of nuclear war."[117]

In the end, much of *Defence in the '70s* sounded much more like the DRAE commentary than the Prime Minister's memo. Some sections read as if pulled directly from DRAE papers. The section on nuclear deterrence notes that:

> [...] from a potential enemy's point of view, however, North America can only logically be seen as one set of targets. Canada's centres of population and industry logically form part of the major target plan for a strategic nuclear attack on North America.[118]

This notion, and even much of the wording, had a long pedigree in Canadian strategic thinking. As far back as 1962, Sutherland had argued:

> Owing to the close integration of the American and Canadian economies, an attempt to destroy the productive capacity of the United States would almost certainly result in some Canadian targets being attacked. The two countries constitute a single target system: it would not make sense to attack the United States and leave Canada alone.[119]

Individual nuclear systems were thus less important for the fact that they were nuclear than that they were an efficient use of Canadian military resources in a way that would promote a stable strategic balance and support upcoming arms limitation negotiations.[120] The AIR-2 Genie remained in the Canadian inventory in order "to play an effective role in the defence of North America against a massive nuclear attack" and was eventually phased out alongside US stockpiles in the mid-1980s.[121] The BOMARC was retired, largely

[117] Lindsey, "Early Draft of Commentary on the PM's Memo for Cabinet on North American Defence," 14 November 1969, II.8.10, vol. 1, 87/253, Lindsey-Sutherland fonds, DHH.

[118] Department of National Defence, *Defence in the '70s: White Paper on Defence* (Ottawa: Queen's Printer, 1971), 25. For the purposes of this study, the 1971 White Paper on Defence will be referred to as *Defence in the '70s*.

[119] Sutherland, "Canada's Long Term Strategic Situation," 204.

[120] Specifically, SALT I, which began in 1969. Department of National Defence, *Defence in the '70s*, 4-7.

[121] Department of National Defence, *Defence in the '70s*, 30.

because it was obsolete; it was similarly phased out of US service in 1972.[122] A prime minister who had branded Pearson as a "defrocked prince of peace"[123] for accepting the nuclear warheads in 1963 ended up keeping some of those very same warheads in Canadian hands for nearly twenty years.

Defence in the '70s is far less clear about NATO nuclear roles. The retirement of the Honest John and the end of the CF-104 strike/reconnaissance roles were mentioned, but not described in detail.[124] This is partly because NATO force reductions had been implemented in 1969, well before the white paper was released. The decision to reduce the size of Canada's forces and relocate them from the Central Front to a reserve role has been discussed extensively elsewhere,[125] but it is worth noting that elements of the rationale—giving the Canadian forces in Europe a "distinct Canadian identity"—goes back to the Sutherland Report.[126] As for the change in the CF-104's role, the paper gave very little strategic rationale for abandoning strike/reconnaissance. DRAE analyses had generally been supportive of the role in raw strategic terms but these same analyses argued that it was inefficient to maintain separate fleets of aircraft for North American air defence and NATO tasks. Given that the CF-5 purchased by the Liberals had failed as an attempt to replace the Starfighters five years earlier, it is somewhat understandable that the white paper avoided such an awkward conversation.

[122] It is difficult to ascertain exactly when this missile was retired from US service. Boeing claims the "early 1980s," whereas the National Museum of the United States Air Force claims "mid 1980s." See "MB-1/AIR-2 Genie Missile," Boeing, accessed 23 May 2019, http://www.boeing.com/history/products/mb-1-air-2-genie-missile.page; and "McDonnell Douglas AIR-2A Genie Rocket," National Museum of the United States Air Force, accessed 23 May 2019, https://www.nationalmuseum.af.mil/Visit/Museum-Exhibits/Fact-Sheets/Display/Article/197594/mcdonnell-douglas-air-2a-genie-rocket/.

[123] Maloney, *Learning to Love the Bomb*, 299.

[124] Department of National Defence, *Defence in the '70s*, 30.

[125] See especially Roy Rempel, *Counterweights: The Failure of Canada's German and European Policy 1955-1995* (Montreal and Kingston: McGill-Queen's University Press, 1996).

[126] Department of National Defence, *Defence in the '70s*, 34.

CONCLUSIONS

Defence in the '70s was about much more than nuclear weapons. There are wide swathes of the paper that have little to do with strategy and bear no signs of DRAE influence. There are other portions—such as the composition of the reduced Canadian ground forces in Europe—where DRAE analysts did have much to say, but those subjects are outside the scope of this paper. Some of the text in the white paper, such as those claiming the suitability of the CF-5 for operations in Europe, were plainly wrong and undoubtedly bothered Lindsey as much as the pilots who had to fly them.[127] Granatstein and Bothwell have good reason to describe the force reductions, budget reductions and organisational restructuring of the Trudeau years as a "long, dark night of the spirit" for the Canadian military.[128] In terms of nuclear weapons divestment, however, the question must be reiterated: was the decision to partially denuclearise driven solely by political "amateurs" or did professional strategists have an influence?

The balance of probabilities indicates that many of Lindsey's and Sutherland's ideas provided a strategic grammar that shaped both denuclearisation and wider defence policy documents. There was a clear pathway for their analyses to move from DRAE to decision makers and advisors. Moreover, given the lack of similar advisory bodies in government or think tanks in the 1960s, there were few rival conceptualisations for policymakers to draw from. Even where there were disagreements about nuclear policy, many of the disagreements employed a strategic grammar provided by Lindsey and Sutherland. To have Sutherland's "involuntary guarantee" referred to by a former assistant deputy minister more than two decades after the publication of "Canada's Long Term Strategic Situation" speaks to the importance of the concept in shaping Canadian thinking on the technical and geographical aspects of its alliances.

It may be tempting to argue that this strategic grammar was nothing more than a convenient lexicon to smooth policy changes at the Cabinet level with the polish of "objective" thinking, but a close look at final policy products indicates otherwise. The mere existence of a Sutherland Report in contemporary government vernacular, and

[127] Department of National Defence, *Defence in the '70s*, 35-36.
[128] Granatstein and Bothwell, *Pirouette*, 234.

the similarity of the report to the *1964 White Paper on Defence*, makes a clear case that he had a direct influence on government policy. In Lindsey's case, Trudeau's acceptance of a strategic balancing, instead of strategic defence, serves as an instance where Lindsey's arguments had a clear impact in shaping Canadian defence policy. Other, more conditional similarities, such as the similarity in language between Lindsey's presentation to SCEAND and the DPR, suggest that this was not a singular event and that the influence survived both Sutherland's death and Trudeau's ascent. Pittfield's observation that many in the DEA viewed Lindsey with hostility not because of his ideas, but specifically because of his rival influence on policy, is a telling one. In normal society, imitation is the subtlest form of flattery. In a bureaucracy, it is jealousy.

The strategic dependency thesis elaborated by Gray is somewhat weaker in light of this analysis. Not only were Canadian strategists thinking about wider nuclear issues, they were thinking about them in a way that was directly applicable to their national strategic context. This finding strengthens Richter's thesis and historians studying Canadian defence and nuclear policy during this era should consider how Canadian strategic thinkers interacted with a wider body of thinking on nuclear issues during the Cold War.

The reader should also question whether the near-total allocation of responsibility for partial denuclearisation given to Pierre Trudeau—the *Trudeau ex machina* explanation—is sustainable. Trudeau undoubtedly had a large influence on Canadian defence and foreign policies. But Trudeau's push for a rethink on nuclear issues had precedents. Many of the questions asked in 1968 had been asked as far back as 1962, reiterated in the Sutherland Report of 1963 and touched on in the 1964 White Paper. Political lethargy and service parochialism created an increasingly large gulf between Canada's economic and strategic situation and its military ambitions. By 1963, even notable military officers like Guy Simonds, one of Canada's best battlefield commanders and Chief of the General Staff from 1951-1955, and Charles Foulkes, Canada's first Chairman of the Chiefs of Staff Committee (1951-1960), publicly

opposed Canada's nuclear commitments to NATO.[129] Serious contradictions in Canadian defence policy had underpinned many of the nation's nuclear acquisitions and someone as intellectually rigorous as Trudeau was bound to find them.

The DRB did not escape the upheaval of the Trudeau years. Reorganisations in the 1970s separated DRAE from the rest of the operational research establishment and tucked it under the Assistant Deputy Minister for Policy.[130] Lindsey, however, passed the torch. In the 1970s and 1980s, *The Canadian Defence Quarterly*, which had been host to many forward-thinking articles about doctrine in the interwar period, was reborn. Ironically, its first feature article was by Colin S. Gray, who propounded Canada's lack of strategists.[131] It was also at this time that DND began sponsoring strategic studies at Canadian universities, allowing for an academic treatment of defence problems from a uniquely Canadian perspective.[132] The era of strategic thought that began with Sutherland's contributions in the 1950s and ended with the Trudeau reviews had passed. A new generation of thinkers would have to take on the intractable problems of a country described by Desmond Morton as "simultaneously indefensible and invulnerable."[133]

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[129] Foulkes and Simonds had long-held reservations about NATO nuclear doctrine, but their views became more public after they testified at a House of Commons Special Committee on Defence in 1963 and 1964. See Isabel Campbell, *Unlikely Diplomats: The Canadian Brigade in Germany 1951-64* (Vancouver: University of British Columbia Press, 2013), 182-85.

[130] Turner, "The Defence Research Board of Canada, 1947 to 1977," 345.

[131] Gray, "Canadian Strategic Thought," 6-12.

[132] Nils Ørvik to Bernard Thillaye, "Re: Centres for Strategic Studies," 23 September 1973, 23, vol. 1, Ørvik papers, Queen's University Archives.

[133] Desmond Morton, *A Military History of Canada,* 5th ed. (Toronto: McClelland and Stewart, 2007), x.